REPORT RESUMES

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AN ANALYSIS OF THE SPECIFIC FEATURES WHICH CHARACTERIZE THE MORE SUCCESSFUL PROGRAMS FOR THE RECRUITMENT AND TRAINING OF COLLEGE TEACHERS.

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BY MEANS OF MAIL QUESTIONNAIRES AND CAMPUS VISITS, DATA WERE OBTAINED FROM 42 COLLEGES AND UNIVERSITIES ON RECRUITMENT PROGRAMS FOR POTENTIAL TEACHERS AND TRAINING PROGRAMS FOR TEACHING ASSISTANTS. ONLY FOUR OF THE INSTITUTIONS SURVEYED REPORTED CONTINUING, SYSTEMATIC RECRUITMENT EFFORTS, THE OTHERS DEPENDING ON INFORMAL TEACHER-STUDENT CONTACTS. DATA ON TRAINING PROGRAMS FOR TEACHING ASSISTANTS SHOWED THAT MOST PROGRAMS WERE DEPARTMENT-BASED AND CONTROLLED BY DEPARTMENT PERSONNEL. THE FOCUS OF THIS TRAINING TENDED TO BE ON PRAGMATIC, IMMEDIATELY RELEVANT CONCERNS WITH LITTLE EMPHASIS ON CONSIDERATIONS ASSOCIATED WITH EDUCATIONAL PHILOSOPHY OR CAREER COMPETENCE IN TEACHING. IN MOST DEPARTMENTS, TEACHING ASSISTANTSHIPS WERE VIEWED PRIMARILY AS A MEANS OF PROVIDING UNDERGRADUATE INSTRUCTION AND FINANCIAL SUPPORT FOR GRADUATE STUDENTS, RATHER THAN A MEANS FOR TRAINING PPROSPECTIVE COLLEGE TEACHERS. A MODEL TRAINING PROGRAM WAS SUGGESTED, CONSISTING OF FUNCTIONALLY DEFINED STAGES WHICH VARIED IN AMOUNTS OF STRUCTURE, ACTIVE SUPERVISION, AND TEACHING ASSISTANT RESPONSIBILITY. OBJECTIVE PROCEDURES FOR EVALUATING TEACHING ASSISTANT PERFORMANCE AND TRAINING PROGRAM EFFECTIVENESS WERE ALSO SUGGESTED. (JH)

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An Analysis of the Specific Features Which Characterize the More Successful Programs for the Recruitment and Training of College Teachers

January 1967

U.S. DEPARTMENT
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The Center for Research on Learning and Teaching
The University of Michigan
Ann Arbor, Michigan

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The Center for Research on Learning and Teaching
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INTRODUCTION

It has been predicted that enrollments in our colleges and universities will double their present numbers by 1980 (19). Our graduate schools are also expected to double their doctoral output during the same period, but not all these Ph.D. graduates are likely to join college faculties. It has been estimated that over three-fourths of the new college instructors are entering the profession without having completed the doctorate (12). On the other hand, it is claimed that the anticipated growth in the number of Ph.D.'s will more than match the increase in student population in the near future (10), and that we may be entering a buyer's market within the next decade.

The accession to the Ph.D. may properly be taken as evidence of a high level of subject-matter and research competence, but it has no necessary implications for the instructor's ability to formulate realistic instructional goals, to organize and present information, and to reliably assess student achievement. So it would appear that regardless of the differences in number-estimates, there remains a need for some training in teaching. Berelson (5) reports considerable agreement on all levels from new doctoral graduates to college presidents that current training leaves something to be desired.

Graduate student teaching assistants stand at the point which represents the convergence of the concerns for the production of college teachers. In many large institutions, they are de facto college instructors, conducting as much as one-third of all undergraduate classes. Furthermore, this proportion is likely to increase as members of college faculties spend more time on research and public service and less and less on teaching. After obtaining their degrees, former graduate students are then recognized as "beginning college teachers," when, in point of fact, relatively few individuals complete their graduate career without some teaching experience. Concern for the production of new college teachers thus resolves itself into two principal problems: (a) the amount of help, supervision and training that is made available to graduate teaching assistants to enable them to conduct college classes in such a manner that the proper education of undergraduate students does not suffer, and (b) the adequacy of the preparation of these individuals for the teacher's role which they will assume when they join college faculties.

The two points are not identical. One method of achieving the first goal--and one which is adopted a considerable proportion of the time--is to reduce the teaching assistant to the role of academic handyman, confining his activities to overseeing labs as a safety warden, or scoring exams that have been written by faculty lecturers, or following a rigidly prescribed method of presenting relatively insignificant details taken from a highly structured syllabus. The implicit stance taken by the assistant's supervisor under these circumstances is that he is not to be trusted with real responsibility and flexibility. It is reasonable to suggest that this lacks something insofar as being adequate preparation to be the kind of college instructor that is generally considered desirable.

The triple tensions of expanding enrollments, a net reduction in the proportion of college teachers with Ph.D.s, and the greater research commitments by university faculties require our explicit attention to the recruitment and training of college teachers, qua teachers (3, 18, 22, 26). Two clear implications can be drawn from these facts: (a) we need information about successful current training programs for teacher-candidates; (b) our graduate schools must address themselves more directly to the specific issues involved in the recruitment and training of college teachers.

Of all the new Ph.D.'s joining college faculties, approximately 90% of them receive their degrees from about 50 institutions (29). Despite this relatively limited source of supply, we have not known in depth or in detail, how the vast majority of our new teachers are being prepared to carry out their professional responsibilities as teachers. It is apparent that the quality of the preparation is often called into question (11, 25, 26). On the other hand, there are some hopeful stirrings on the scene. This study proposes to delineate their characteristics. There are virtually no published reports from almost half of the "crucial 50" institutions.

Even those studies which are available lack many of the details necessary to appraise their effectiveness. For instance, Axelrod's (2) report of a conference on college teacher preparation gives information on only four programs: Davis' (13) report for the North Central Association is largely devoted to recruiting programs among NCA institutions: Alpern's (1) survey of courses for the preparation of college teachers deals only with the number of formal courses offered and the general topics covered in them, and the information in Blegen and Cooper's (6) report needs to be brought up to date. The current literature, therefore, can contribute very little specific and detailed information to help any given institution plan and conduct a formal program for the preparation of prospective college teachers. The problem is so immediate and extensive that our system of higher education can no longer afford the luxury--if it ever could--of allowing each institution to grope its way toward a solution without benefit of the experience of others.

The problem of training future college teachers is recognized in the literature. Several large studies (11, 25, 26) reported that both college administrators and new instructors were restive about the relative lack of skill in undergraduate teaching. Even the foremost proponent of the position that there is no crisis in college teaching (5) reported that college administrators see the task of the graduate school as two-fold, with research competence taking first priority, but followed closely in importance by preparation for college teaching.

In response to these needs, there have been many proposals, such as Carmichael's (8) MA-3 program which is currently receiving support from the Ford Foundation in almost 40 institutions (32). Other prominent suggestions include: an organized in-service training program conducted by the first employing institution (14), and systematic preparation of college teachers with degrees other than the Ph.D. (5, 7, 8).

Only a little information on recruitment programs outside the North Central Association area (13) has been readily available beyond those connected with the MA-3 (32), Danforth and Woodrow Wilson programs. Most such efforts appear to be informal in nature, consisting of individual interest in, and encouragement of, especially capable students by instructors. It would be useful to know of any more organized programs, their success, and how this success is evaluated. Davis (13) refers to a few such plans but it would be helpful to have more information about these promising developments.

The most serious gap in the information concerning recruiting activities is the evaluation of their comparative or cumulative success. Indeed the question is not often raised in the reported literature. About the only available information has been that which could be inferred from sources such as the current Danforth Foundation Annual reports, and the Woodrow Wilson *Roster of Current and Prospective College Teachers*.

Reports of Training Programs

This brief survey of reported training programs will be organized under five headings: (a) administrative structure and features, (b) the population receiving training, (c) purposes and forms of training, (d) characteristic substantive features, and (e) methods of evaluation. The scheme is followed in order systematically to present the available information, and to identify gaps. The same outline was used in carrying out this study.

Administrative features. A survey of about 30 reports covering over 450 training programs indicates that approximately 70% are under departmental control, while 25% are institution-wide in scope. Some of the more comprehensive articles are those by Axelrod (2), Blegen and Cooper (6), Clark (11), Davis (13), Dollahan (15), and Gustad (21). Unfortunately, there is little information on the source of the impetus to initiate training programs or the length of time they have been in operation, or the particular factors which have served to facilitate or inhibit establishment and/or continued operation.

Population receiving training. It is fairly clear that most (over 80%) of the programs are directed toward graduate students working for the Ph.D. degree. The remainder are chiefly oriented toward other degrees (9, 30).

Formats of the programs. The most common activity which can be construed as part of the training of future college teachers is the teaching assistantship, which serves as a part (often the core) of over 75% of the programs surveyed. Representative articles are those by Axelrod (2), Clark (11), Davis (13), Dollahan (15), and Remak (31). This experience, in which the trainee deals in varying degrees with most of the day-to-day problems of college teaching, tends to be considered by the individuals themselves as the most useful activity in their preparation for a teaching career (11, 15).

However, it is not enough to know how many programs provide classroom experiences for graduate students. What are the authority, freedom, and responsibility of these teaching assistants? Fortunately, there is considerable information on this topic, with the best single source being Clark (1964).

It would be generally agreed that to be maximally effective, the classroom teaching experiences which occupy a focal position in the training of future college teachers require considerable supervision and guidance by senior faculty members. Descriptions of training programs for graduate students should provide such information, and roughly 95% of them do so. Unfortunately, although new instructors report that readily available guidance was one of the most helpful aspects of training (11), less than half of them actually seem to receive systematic help and consultation from senior staff, as reported by such studies as Baller and Worchester (4), Blegen and Cooper (6), Clark (11), Davis (13), and Diekhoff (14). In summary, there seems to be adequate information about relatively inadequate supervision.

Substantive features. A simple report of the number of instances which may be identified within a specific category is not much help vis-a-vis establishing and developing new programs unless the category can be shown to relate to productive and/or efficient training. Reporting that a given procedure is used by a large majority of current programs provides no discriminating power --it could be, and probably is, used by many plans of indifferent quality. What is needed is an explication of the aspects of training which appear to be criterial for effective programs--and this information is not available in the summary statements of current structures and procedures.

The most common kind of information that the beginning college instructor receives deals with the presentation of methods and techniques which are seen as particularly applicable to specific content within subject-matter areas. This is reported by about 65% of the 456 programs surveyed. Among the more typical accounts are those by Clark (11), Dollahan (15), Eckelberry (17), Jensen (23), and Winkelman (33).

Since the profession of college teaching is a multifaceted one, and since there are certain skills associated with each aspect of it, information on the means adopted to develop these skills could prove quite useful in establishing programs for preparing new instructors. There is little published information on the matter. The question of what professional knowledges and skills are developed by the current programs appears unanswerable on the basis of the readily available reports. The amount and kind of instruction that is given on many of the topics which would seem to be highly relevant is indeterminate. The fact that many courses on a given topic are offered (Alpern, 1962) is of no help, because so few programs are reported as making use of them.

Summary. There have been many analyses of the problems involved in supplying sufficient numbers of adequately trained new college teachers, and there have been many proposals of ways of meeting these problems. There is apparently considerable disagreement as to what constitutes "adequate training," but much of the literature leans toward at least some preparation for teaching *per se*, as distinguished from subject-matter competence (which is taken for granted). Regardless of the analyses and proposals, however, there appear to be few systematic, practicable programs set up to provide only such instruction as is necessary and sufficient to meet the demands for entering a professional teaching career. In many cases, "training" is a by-product of universities' need for teaching assistants to conduct undergraduate classes. The literature on the programs which are in existence is inadequate with regard to four of five important areas: (1) With regard to administrative features of the program, it is clear that most are department-based, but there seems to be little information on many other dimensions of management. (2) The information appears adequate in respect to the specification of the population receiving training. (3) The data on the forms which training takes is quite spotty, with some important areas relatively blank. It is difficult, in other words, to be sure what is being done. (4) The same situation obtains with another feature--that of substantive content. There is little relevant information about the specific topics and skills in which the apprentice teacher receives instruction. (5) Finally, with regard to the important question of evaluating the effectiveness of the programs, the inquiry is seldom even made.

Objectives of the study.

A. The Factual Summary

The first objective was to prepare a summary two-part factual report with the following sections:

1. Recruitment

The on-site visits provided data about the administrative organization and the form of recruitment activities on the various campuses.

2. Training

Information on training programs in operation was obtained by mail and by on-site interviews with administrators, supervisors, and participating teachers. Data were obtained in the following categories:

a. Administrative and quantitative features of the program
b. The nature of the population receiving training
c. The format of the program (formal courses, supervised teaching, etc.)
d. The kinds of knowledges and skills in which training is given
e. The means adopted for evaluation of the program.

B. The Evaluative Interpretation and Recommendations

The second objective of the investigation was to describe a well-balanced and articulated program for the training of college teachers--one that would be efficient practical and flexible. Furthermore, this "model" would be based on distinctive and progressive features of successful, on-going programs. It would provide a rough blueprint for the development of effective training programs, while affording sufficient flexibility to encourage variations to meet specific institutional or departmental needs.

In addition to its substantive features, the recommended plan should have the following procedural characteristics: (1) the time devoted to training activities must not add appreciably to the time lag between the AB and Ph.D. degrees, (2) suggestions should be made concerning appropriate and practical criteria for successful programs, (3) the model will be so structured that all graduate students who teach will receive some guidance and help, but only those committed to a college teaching career would receive more intensive and broader training, (4) suggestions should be made of administrative actions which can be taken to emphasize the recognition by the institutions of their responsibility to produce both able scholars and skilled teachers.

METHOD

The study was designed to supply basic information about a large number of training programs for teaching assistants, and more precise, detailed data about a smaller number of selected programs. The dual goals dictated two modes of operation: relatively large-scale mail contacts with institutions and departments, and on-site interviews with the people most intimately concerned with the features of a particular program. The first mode was logically propaedeutic to the second, and this was the sequence that was followed. To insure comparability of information across institutions and across investigation-modes, a common outline of topics was developed. It was not expected, however, that this outline could effectively account for all variations of administrative structure, procedure, or personnel assignment. Therefore, the way was left open to expand or modify the original outline and to report unanticipated but promising developments when they were encountered.

Selecting the Original Sample

Judging from published articles, it was concluded that most training programs were focused in, and administered by, departments, and that it was necessary to gather most of the basic data on that level. The task then became largely one of discovering the departments _within_ institutions from which the most useful and generalizable information could be obtained. The aim of the investigation was not simply to gather systematic cross-sectional data, but to identify and study more intensively those programs which appeared to be most sophisticated, practical, and effective, in the hope of providing information upon which overall improvements in existing programs could be made.

The choice of institutions with which to initiate contacts was made on the basis of the following criteria:

First, thorough search of the relevant literature was made to determine those universities or departments whose training programs for teaching assistants were reported therein. Special weight was assigned to those programs for which there was more than one report extending over a period of years and those with new systematic programs for which outside funding had been secured (implying thorough planning and explicit goals). This kind of information allows the inference that, in general, the programs so reported are more likely to be clearly formulated and strongly supported (both financially and administratively) than are unreported programs. Second, Pfnister's (29) report of the 50 most productive universities identified the institutions which best characterize the training which is actually received by most graduate student teaching assistants. Because they are also large institutions, it would be possible to study a variety of training procedures, philosophies, and plans while visiting a relatively few campuses.

Third, training programs that were considered especially effective or imaginative by University of Michigan faculty members were studied. Programs which met all three of these criteria were, of course, given top priority.

The Mail Survey

Letters were sent to the second-ranking academic officers of the selected institutions, explaining the nature of the study and requesting identification of the "three or four most active training programs" in the institution, or referral to an administrative officer who could provide such information. A copy of this letter will be found in Appendix A.

Replies to this letter led to the following alternative courses of action. If referral was made to an administrative officer, a letter was sent explaining the purpose and character of the study, accompanied by multiple copies of a general questionnaire. It was requested that the questionnaires be forwarded to those departments which, in the addressee's opinion, were conducting the most effective or promising programs designed to prepare graduate students for a college teaching career. The letter and the questionnaire are reproduced in Appendix B. In those cases in which referral was directly to the departmental level, questionnaires plus explanatory letters were sent directly to those departments.

Selection of Institutions for On-Site Visits

The information that was gained in the two stages of the mail survey was evaluated in conjunction with that previously obtained from the literature, and secondary sources. In those (relatively few) cases in which there was no response to the mail contacts, judgments were based on the previously obtained information, and on the general reputation of the institution as an academic leader.

The criteria which were applied were: (1) a commitment of resources to the training programs which was clearly above-average for the overall sample; ( ) an indication of strong administrative interest in training by the department or the university: (3) a training plan with distinct features in at least one department; (4) the existence of special environmental conditions, such as extensive use of TV for undergraduate instruction, undergraduate unrest and "activism", or the lack of the enrollment pressure usually associated with the use of graduate students as instructors, and (5) unusual sophistication in the response to the questions about the evaluation of the effectiveness of the program.

Conduct of on-Site Visits

Interviews were conducted with university officers, and with department personnel: they were tape recorded, and were structured along a common outline, the categories of which are specified in the detailed report of results in Appendix D. An average of five contacts was made at each university. In nearly all cases, departmental information was obtained from the individual charged with the supervision of teaching assistants--frequently the chairman. Each interview was approximately an hour in length.

Treatment of Data

Information from the mail questionnaires and from the visits was codified and tabulated (separately) according to a common categorization scheme. Measures of central tendency and of range were obtained where appropriate. Special note was taken of particularly imaginative, systematic or well-articulated features which were in use and appeared to be effective.

Results

Data was collected by mail and/or campus visit from 71 humanities, 14 social science, and 51 natural science departments, plus 10 professional schools and 26 administrative officers above the departmental level, representing a total of 42 institutions. The entire list of university units is presented in Appendix C. The first round of letters was sent to the officers of 50 universities, of whom 44 (88%) replied. The second round of letters and questionnaires was sent to 193 departments and administrative officers in 44 institutions; 113 (58%) mail replies were received from 35 institutions. On-site interviews were conducted with 105 individuals in 20 institutions. In general, results are here reported in terms of proportions; the actual number of responses falling in each category is presented in Appendix D. It was not possible to obtain data on all topics from all respondents. In those cases in which fewer than 25 responses were received, ratios will be reported.

Recruitment Activities

Information on recruitment programs was obtained during the 20 on-site visits. Three programs, those at Chicago, Michigan and the University of Washington, involve cooperative arrangements with nearby four-year colleges and active recruitment among the latter's freshmen and sophomore students. A fourth systematic program, at Tulane, focuses its recruiting activities at the high school level. Like the preceding three, it was begun with a grant from the Ford Foundation. Since all but one of these plans has been described in the literature, the present report will be confined to an overall summary and a note on the current status of each.

The Chicago, Michigan and Washington programs were begun as part of the Ford MA-3 plan, and all involve regular administrative contact between a director or coordinator at the university level and representatives at each of a group of four-year colleges. Personal contact is made with students, literature is distributed, and special meetings are held to promote the desirability of college teaching as a career. The Chicago program (12) concentrates on accelerating the academic preparation of the student, while conducting seminar-type discussions at which issues and problems in college teaching are discussed. The University of Washington plan (23) has a master-apprentice arrangement in which students receive on-the-job introductions to the facets of the college teacher role. In both cases, students spend their junior and senior years on the college campus, and transfer to the university after graduating with the A.B. degree.

As of the summer of 1966, two groups in the Chicago plan, each numbering about 50 students, have spent at least one year on the University campus. Although the program was originally designed to provide college teachers at the M.A. level, over half of the participants have elected to continue past that point in graduate school. That the program has been successful in attracting very able students is attested by the fact that almost one-third of them have been offered sought-after fellowships such as Woodrow Wilson, Danforth and Fulbright. The program will continue through the 1967-68 academic year.

The University of Washington Cooperative Program of Education for College and University Teaching began in 1960 with Ford funds. Ten of the original twelve institutions are still cooperating in the project, although external funding has ceased. Several hundred students have participated in the program to date, with approximately half of them having attended the University of Washington. The value which the institutions attach to the program is shown by the fact that they have elected to continue without outside funds for another three years.

The Tulane program (20) began with a five-year grant in 1962. Since it was envisaged as a five-year program beginning with the undergraduate freshman year, it is not yet possible to evaluate its success in attaining its goal of producing more and better college teachers. However, the University has taken steps to continue the program on its own and has announced a plan to provide four-year University (graduate) fellowships for students who are willing to commit themselves to preparation for college teaching careers. By centering attention on high school seniors with outstanding academic records and an interest in teaching, the caliber and motivation of the participants has been maintained at a high level.

Since an account of the Michigan Scholars in College Teaching Program is not available in the published literature, a brief description of its structure and mode of operation is included here. This report is based on an annual report distributed by the program (26). The Program is a joint endeavor of five four-year colleges and the University of Michigan and has as its focus the preparation of the liberal arts college teacher. A director on the University campus maintains close contact with representatives in each of the other participating institutions where a large number of faculty members serve as primary agents in the identification of potential Scholars. The program operates without financial inducements to the students, but relies on continued attempts to cultivate in undergraduate freshmen and sophomores an interest in college teaching.

In their junior and senior years, the participants are given opportunities to enroll in honors courses, in independent study--often selecting readings from graduate reading lists, in research courses and in an acceleration of their foreign language competence. All of these are seen as direct preparation for graduate work. In addition, the students participate in seminars on their home campuses, and in an annual conference (on the University campus), all focussed on the issues and concerns of college teaching. During their senior year, memberships in appropriate professional organizations are provided, plus subscriptions to its associated journal. Visits to the graduate departments at the University of Michigan are arranged, and there is a continuing close relationship with senior faculty members involving some teaching experiences and encouraging a professional orientation.

Contact with the students is maintained after they enter graduate school. To date, one-third of them have received citations or awards; two-thirds hold fellowships --often quite prestigious ones. In terms of evaluation, it is still too early to tell whether the program has accelerated the achievement of advanced degrees. It is clear, however, that the interest of the Scholars in college teaching has been maintained.

During 1964-65, the last year for which complete data is available, there was a total of 340 Michigan Scholars, of whom more than 115 were in graduate school. The program, begun in 1961 with a grant from the Ford Foundation, is expected to be continued indefinitely by the participating institutions.

In addition, two of the universities, Ohio State and Wisconsin, participate in state-wide recruitment activities in cooperation with other institutions in their respective states. These programs have been reported by Davis(13), and will not be described here.

In the remaining 14 institutions, recruitment activities are informal in nature, consisting mostly of individual contact and encouragement of promising young scholars by faculty members. In at least two of the universities, however, annual campus-wide meetings are held to acquaint undergraduates with the challenges and rewards of college teaching careers. Under these circumstances, it is understandable that there are few attempts to evaluate the success of such recruitment efforts.

Training Programs

The "consensual" training program

Nearly all programs in the 42 institutions contacted are department-focussed and virtually all training activity is controlled by, and confined to, department personnel. Two administrative factors appear to be crucial to the establishment and continuance of training programs: (a) the participation by senior members of the faculty who command the professional respect of their colleagues, and who stand in positions of influence; (b) the presence of individual faculty members who have the interest and capacity to serve as effective administrators of the program. Sometimes these roles are combined in the same individual: but in large departments, they tend to be separated. Interestingly enough, despite the publicity given in recent years to the need for more college teachers, it was the opinion of these respondents that the proportion of their Ph.D. graduates going into college teaching has not increased signigicantly.

Typically, teaching assistants begin their instructional duties in the first graduate year with very little formal consideration of their teaching potential or competence. Under these circumstances, it would appear that from the standpoint of the teaching assistants and of their undergraduate students, adequate and continuing supervision and guidance is very important. In point of fact, such activities tend to be confined to weekly meetings of instructors to deal with administrative problems, occasional informal contacts between supervisor and teaching assistant, and one visit to the assistant's class.

As might be expected, the skills and knowledge upon which attention is customarily focussed in training programs are those seen as most directly relevant to the teaching assistant's day-to-day duties. These most commonly include information on specific teaching strategies which appear well adapted to certain topics, drawing up course outlines, syllabi and reading lists, and at least an occasional brush with the problems of evaluating student achievement. "Methods" courses *per se* appear to be a universal anathema.

Lastly, there is little systematic activity to report regarding the evaluation of either the performance of teaching assistants or the success of the program. In both cases, global opinions of the faculty are the most common basis for judgment. There appear to be few attempts to state with any clarity what the goals of the training program are, or what "competence as a teacher" means with regard to a teaching assistant. There are some exceptions, but they constitute a small minority.

Administrative factors

The availability of certain quantitative information can help in assessing the magnitude of the problems that must be faced in establishing and maintaining training programs for graduate student teaching assistants. Such data can also provide a background for more meaningful discussion of other aspects of the programs.

Most training programs are centered in departments, and in the sample which was studied, they are large departments. Almost half of them report 125 or more graduate students enrolled, and two-thirds have more than 25 teaching assistants. When dealing with numbers in this range, the establishment of relatively formal arrangements for training and supervision appears to follow. Small numbers of graduate students who are actively engaged in undergraduate instruction can be individually guided on an apprenticeship basis with little difficulty and investment of time. However, most of the visited universities are very large and are continuing to expand their undergraduate enrollments. This fact often tends to elicit relatively centralized and formal structures in the training programs and the allocation of faculty time for supervisory functions. Translated in terms of departmental work-load considerations, according to the respondents in this study, the supervision and guidance of substantial numbers of teaching assistants make demands on the energies and time of the faculty which are quite comparable to those involved in most other administrative assignments. It is significant, then, that in less than one-third of the observed programs is faculty time expressly set aside for such functions. In the remainder, these duties have simply been superimposed on other administrative tasks and teaching and scholarly activities.

In relation to the above considerations, the conservatism of the academic enterprise in making adaptive adjustments to a rapidly changing situation is underlined by the fact that 46% of the training programs report that they have remained in substantially their present form for 10 years or more. During this time, undergraduate enrollment in almost every institution has doubled, and the use of graduate students for conducting lower division classes has been greatly expanded. In other words, the striking growth in the magnitude of the problem of training and guiding teaching assistants has occurred without a corresponding change in the methods of coping with these enlarged demands.

Data were collected which permit a rough estimate of the rate at which college teachers with Ph.D.'s are being produced by these departments. Fifty-five percent of the respondents estimated that his department granted fewer than 25 Ph.D.'s over the past five years; the range was from 15 to well over 100. An attempt was then made to estimate the proportion of these graduates who had gone into college teaching. The information here is quite tentative because most departments appear not to keep systematic records on this point, and the respondents were forced to rely upon their memories. In 62% of the cases, however, it was estimated that 80% or more of the graduates enter college teaching, 82% were in the humanities; of those estimating that less than 40% became college teachers, all were in the natural sciences. To probe this matter a little further, the question was asked whether the proportion of college teaching-bound graduates had changed during the past five years; 25 of 31 natural science departments which replied saw no such change. Of course, no significant change is possible in the humanities, where a teaching career is a traditional part of the professional role.

Administrative structures and their development

The preceding paragraphs show that the great majority of training activities are department-based and administered. In only a few instances oes the program call for the participation of extra-departmental units of the institution. An individual graduate student may attend seminars or courses on college teaching offered for example, by Schools of Education, but not as a regular part of his formal training program. In most cases, the structure of the department-based program is an historical development reflecting measures to meet needs as they arose in the past. In approximately 30% of the departments, however, the present chairman or the faculty member charged with the supervision of teaching assistants, either instituted or significantly changed the system to its present form. This fact has implications regarding the critical importance of such individuals for the maintenance for experimentation and growth of the teaching assistant program. With regard to supervision and administration, the department chairman performs this function in about one-third of the cases (usually in the smaller departments); in another third, a faculty member other than the chairman is in overall charge: in the remainder, there is no overall faculty direction--the professor in charge of each course in which teaching assistants work gives such guidance as he sees fit, or an experienced graduate student teacher serves as mentor to beginners. In nearly all cases, the cost involved in conducting the training programs are borne by the university.

Facilitating and inhibiting administrative factors

In the opinion of the respondents, two principal factors, when they occur, serve to facilitate and strengthen the operation of a training program for teaching assistants: (a) The dedication that one or a few faculty members of the department bring to the task. In very few cases do a majority of the staff participate directly in such training. On the other hand, there are almost no instances in which a faculty position is considered primarily associated with the supervision of teaching assistants. So far as the training programs are concerned then, it is fortunate that in almost half the cases individuals have emerged who have been willing to assume these responsibilities. (b) The second factor which was mentioned as particularly significant to the well-being of the training programs is the interest and official stance of important figures in administrative positions, especially, but not exclusively, that of the department chairman. The sympathy and influence of important power figures in the academic hierarchy, both within and outside the department, were seen by respondents as critical factors in operating a systematic training program.

Two factors were seen as fairly often inhibiting the development of programs. The first, and most often mentioned (43% of the cases), was the lack of faculty interest in the training-supervision role. Members of departments such as the ones studied are oriented primarily toward content and scholarly activities, and they appeared intent on creating the next generation of scholars in their image. The result was that a sizable proportion of the respondents felt they were faced with a massive apathy in their efforts to develop scholars _and_ teachers. The other inhibitory factor--and one which is not entirely separate from the first--is the shortage of staff for carrying out training functions. The "normal" and traditional faculty activities of administrative assignments, teaching, writing, and research are often seen as preempting all available time. The result is that much lower priorities are often attached to the time-consuming tasks of developing skilled teachers.

Population Receiving Training

Virtually all respondents reported that graduate students serving as teaching assistants were automatically expected to participate in the formal training program. These activities typically begin in the first graduate year; that is, in two out of three departments and schools, the teaching assistantship is open to students who have just completed their A.B. degree. Under these circumstances, the need for readily available guidance and supervision is apparent. It is worthy of note that in only about 10% of the departments is guidance and counsel by experienced teachers specifically offered all new instructors for introductory courses.

In the selection of graduate student teaching assistants, the most frequently reported criterion was the student's academic record, with letters of recommendation taking second place. Teaching experience, or demonstrated potential for teaching, was a rather distant third. It seems clear that in many cases these schools and departments use the teaching assistant's stipend as an inducement to attract outstanding students: the selection of prospective teachers in the usual sense of the word often does not obtain.

Formal Characteristics of Programs

The main emphasis will be given to the conditions under which teaching assistants operate, their degree of autonomy, the kinds of training and guidance that is given, and sequential changes in all of these.

In this survey, any teaching-related activity in which graduate students engaged is considered part of their training. As will be seen, most of it is on-the-job or conducted in a manner which makes clear its relevance to the conduct of classes, the presentation of material, or the treating of student achievement. Considerable variations were noted in the scope of the activities associated with a given program--ranging from a brief orientation meeting and a few brown-bag discussions to formal course offerings, regular individual meetings between teaching assistant and supervisor, and several class visits by the supervisor. Variations also exist in the degree of formal structure which obtains; some programs operate on the basis of occasional informal discussions between teaching assistant and supervisor, while others boast a clearly defined three-level hierarchy with a faculty supervisor, a cadre of experienced teaching assistants who serve as group leaders, and relatively large numbers of comparatively inexperienced "apprentices". As might be expected, the more formal features are usually associated with the larger departments.

Conditions under which teaching assistants operate

Roughly one-fifth of the respondents report that some teaching experience is either required or "expected" as part of the normal Ph.D. program in their departments or schools. The proportion of graduate students who actually engage in teaching is, of course, much higher than this, but it is usually considered an optional activity. The teaching assistant ordinarily conducts one or two sections of a large introductory course. In almost half the cases, the average number of classroom contact hours between teaching assistants and undergraduates is from four to six per week, although 19% report nine or more hours. These are most frequent in laboratory courses, where the need for supervision is relatively high but preparation requirements are minimal. In nearly all cases, the half-time teaching assistantship is considered "standard".

In approximately 45% of the programs reporting, the graduate student teaches for three or more years. This tends to occur more frequently in humanities departments than in social or natural sciences, where the averages are closer to one and one-half years. Respondents admitted that half-time teaching for three years went beyond the requirements of training in instruction, and that it also slowed down the attainment of the Ph.D. The pattern was defended on the grounds that large numbers of undergraduates must be taught and the graduate students needed the financial support provided by the assistantships. There appeared to be a general tendency to "officially" regard the entire pre-doctoral teaching career as training, but in practice, there typically is a decided increase in the assistant's freedom and autonomy after the first year. The programs in the larger departments tend to be less flexible in this respect, unless a systematic progression toward colleague-ship with the faculty becomes an intrinsic part of the overall design.

Almost two-thirds of the programs increase the teaching assistant's stipend with increasing experience, but in the remainder this is not the case--the beginning salary is also the final one.

Teaching assistant autonomy and responsibility

This topic represents a real and concrete problem for faculty members charged with the responsibility for guiding the graduate student toward full competence as a college teacher. On the one hand, it is desirable that certain skills be acquired, and the teaching assistant become familiar with the appropriate criteria for making decisions about textbooks, teaching methods, and modes of evaluation. On the other, it is essential that the teaching assistant's imagination, energy, and problem-solving skills be called into play, and that his sense of freedom and autonomy be increased. It appears to be the unfortunate case that assertions are often made which seem to represent a commitment to the "autonomy" goals but which were interpreted as rationalizations for lack of supervision and guidance. On the reverse side of the coin, there are voiced concerns for the welfare of undergraduates (that they not be subjected to the ineptitudes of unskilled teachers) without a parallel interest in helping graduate students acquire the skill which will benefit them and their undergraduate students, when as new Ph.D.'s, they join college faculties.

In considering the points reported here, it should be borne in mind that when important decisions are made exclusively by either a faculty supervisor or a teaching assistant, that the adequacy of the action as training for the latter should be examined. In almost 50% of the cases reported, the choice of text and course content is made by the faculty person in charge of the course; in 25% it is the prerogative of the teaching assistant, and in the remainder, joint decisions are made. Practically all teaching assistants are given a syllabus or course outline at the beginning of the term. However, these vary a great deal in the amount of detail they contain. About 45% of them, for instance, supply a day-by-day schedule, with a rigid control of the sequence of topics, the time allotted to each, and the mode of treating the material. In these cases, of course, there are few decisions for the teaching assistant to make; in the remainder, there is less specification of his activities.

It is worthy of note that, in five of the departments studied, extensive use is made of closed circuit television as a means of conducting very large introductory courses. A common pattern is to have televised lectures fed to multiple classrooms of section size, allowing part of each period, or one class session each week for discussion and clarification of the TV presentations under the leadership of the teaching assistants. One effect of this procedure is much like that associated with the use of a highly structured syllabus or course schedule--it reduces the teaching responsibility of the teaching assistant, and restricts him to certain kinds of classroom activities. This is quite consonant with the goal of efficient conduct of undergraduate classes, but probably must be supplemented with other experiences to attain the balanced goal of training future college teachers.

In about 20% of the departments reporting, the faculty supervisor or course instructor constructs the examinations; in 30%, the teaching assistant performs this function; and in the remaining 50%, they collaborate. It would appear that it is under the last condition that the best opportunity exists for the development of the subtle and fairly technical skills involved in test construction. On a related point, teaching assistants assign course grades in 45% of the cases, and collaborate with the supervisor in an additional 36%. Here again is an excellent opportunity to introduce the assistant to the philosophical and pragmatic considerations which are at stake.

Training and supervisory functions of teaching assistants

A new development in 16 of the larger departments is the regular use of experienced teaching assistants in administrative, training, and supervisory roles within the program. Three reasons are usually offered for the adoption of this device: (a)It is asserted that an experienced teaching assistant is more regularly available to beginners, and thus better able to offer advice and guidance. (b) Having recently experienced the same problems that face the neophyte, he is in a position to offer more practical advice. (c) Finally, the use of his time to supply help on many details permits more efficient use of scarce supervisory time. In the programs in which they are used, these "master" or "senior"teaching assistants often play focal roles. Under these circumstances, careful selection is obviously important, and it is usually carried out by faculty committees rather than by single individuals.

The teaching assignment for the "master" assistant is typically reduced and he is given duties which seem to fall roughly under three general headings: (a) He may serve as a guide, advisor, helper and "mentor" for new teaching assistants. He is available for consultation on problems; he may visit the newcomer's class to make helpful suggestions; he helps shepherd him through the first bewildering weeks of college teaching. He does not officially evaluate the beginner's work, although he may serve as a group leader for several new teaching assistants. One department which uses this scheme increases the "master's" stipend for playing academic Big Brother to one beginning teaching assistant. Another assigns the master as a group leader for 7 or 8 newcomers, and reduces his teaching load by half. (b) A second class of functions which are sometimes assumed by the experienced teaching assistant, casts him in the role of administrative assistant to the faculty supervisor, relieving the latter of many details in the day-to-day operation of the program. (c) The third kind of activity in which the experienced teaching assistant engages, involves direct supervision, including evaluation, of the progress of junior assistants. In this capacity, the "master" takes on a quasi-faculty role, and in effect extends the sphere of influence of the staff supervisor.

Mechanisms of training and guidance

In this section, the various devices which have been adopted as a means of contributing to the teaching assistant's teaching skills are discussed in the order of their frequency of use. Training programs often combine two or more of these mechanisms.

1. "Individual supervisor"

The approach most often followed is that of "individual supervision" (reported by 84% of the respondents). By this is meant that all or most of the guidance and help which is provided the teaching assistant is offered on an individual basis; organized or group presentations and discussions are minimal. "Individual supervision" most often takes one or more of three forms. The most frequent one reported stresses the "availability" of the supervisor for consultation, informal discussion between supervisor and teaching assistant, and occasional contact with very little structure. This format, probably an extension of the pattern familiar in small departments in the past, leaves the initiative in the hands of the teaching assistant and enjoins a fairly passive role for the supervisor. The second most popular form of individual supervision takes the form of one or more class visits by the faculty person to observe the in-class teaching skills of the teaching assistant, often followed by brief conferences. It will be seen that this mechanism requires the assumption of more active participation by the supervisor. A less frequent form of individual supervision calls for regular meetings between the teaching assistant and his faculty mentor. These may vary from brief conversations at "critical" points in the term (such as the construction of a quiz or exam) to weekly sessions lasting an hour or more.

2. "Brown-bag seminars"

The second most frequently used device in training programs are the informal meetings("brown-bag seminars") of all teaching assistants, or all assistants teaching in a given course. About 65% of the programs report such meetings. The modal frequency is one meeting per week, for one semester, although a few continue for a year or longer. The most frequently mentioned activity in such meetings is "coordination of the various sections", giving the impression that they are mostly concerned with administrative matters. These group meetings are also frequently combined with some form of individual supervision.

Service as an assistant to regular (faculty) instructor is reported in 56% of the programs. This role entails setting up lab equipment, grading examinations, tutoring students who are having difficulty in the course, reading papers and laboratory reports, drawing up reading lists, and checking homework problems. The teaching assistants also regularly observe the classroom management by skilled instructors, 41% of the programs report this device and they tend to be the same departments where the teaching assistant assists a faculty member rather than conducts a section of a course on his own. This combination tends to put the graduate student in a fairly passive satellite role , unless it is supplemented or succeeded by activities calling for more autonomy and responsibility.

The popularity of pre-service orientations of teaching assistants seems to be increasing. About 40% of the programs now conduct meetings before the beginning of fall semester classes at which various administrative matters are clarified, such as departmental and college rules, the assignment of sections, forms, and texts, and the distribution of syllabi. Most are only two to three hours in length, but 19% of the departments devote from one day to two weeks to a systematic presentation of some of the problems in both content and teaching, which the new teaching assistant will face. At present, extended pre-service training is used by humanities departments, but this arrangement may have special advantages for the laboratory disciplines. Most science departments which have conducted such sessions report that opportunities to work through the first several experiments of the undergraduate course have positive effects on the morale and self-confidence of the neophyte teachers.

Only 24% of the departments and schools offer formal courses or seminars in college teaching. These courses typically meet 30 or more times per semester and carry up to three hours credit. However, attendance by teaching assistants tends to be quite low, unless the course is required by the department. This is similar to the reception given courses in higher education, or in teaching methods, which are offered by schools of education.

Sequential experiences in training

Approximately one-third of the training programs regularly attempt to match the teaching assistant's increasing competence with roles and tasks calling for increased responsibility and freedom to make decisions on his own. That is, they may begin training with considerable structure and with close supervision and guidance, and systematically reduce or remove these constraints as the teaching assistant's competence develops. These evolutionary changes are informal and are usually made on an individual basis, but in a few programs they are a built-in part of the training scheme. Representatives of these latter departments make the point they are trying to attain the twin goals of quality undergraduate teaching in their own university, and Ph.D. graduates who are completely equipped to carry out the duties of a college teacher.

So far, three general patterns have emerged. In the most common one, the beginner first assists and observes in the course he will later teach. In this way, he refreshes himself on the content of the course and becomes familiar with methods which have been developed by others and upon which he can build his own approach. After one semester in this role, he teaches one or two sections of the same course. A second procedure is to mix the observation and teaching roles in the same semester. In this plan, sections taught by experienced instructors progress through the content of the course a little faster than the sections taught by beginners. The new teacher sits in one of these "demonstration" sections, observes teaching procedures, and content areas where students have difficulty, and uses this knowledge in conducting his own class. This scheme, of course, requires that all sections follow the same sequence and move at about the same pace. The third pattern calls for the teaching assistant to first teach a section in the introductory course of his discipline, and, with increasing subject-matter and teaching competence, to advance to honors sections or to discussion sections of intermediate-level courses. As yet, none of these schemes has become widespread, but they appear to be increasing.

Additional training devices and facilities

One university makes regular use of an observation classroom, in which one wall has been replaced by one-way glass and a large viewing room constructed. With the addition of microphones suspended from the ceiling, it is possible to hear and see an ordinary class being conducted without disturbing teacher or students. The room is shared by several departments and is in regular use. Early in the fall term, all new teaching assistants in these departments observe, as a group, one or more classes each week, accompanied by a faculty supervisor or an experienced teaching assistant who elicits discussion and answers questions about activities in the classroom. A second university is planning a similar installation.

About 10% of the departments studied supply their new teaching assistants with "instructors' handbooks", which typically provide many useful and practical details relevant to their teaching activities. These are in addition to course syllabi or outlines, and contain such information as the department and college regulations governing the conduct of undergraduate classes, practical tips on how to get discussions going, the pros and cons of teaching methods and grading practices, and outlines of the teaching assistant's duties.

Mention should be made of another idea that is not yet widely used but appears to hold promise for certain aspects of training in teaching. In an effort to sharpen teaching assistants' sensitivity to the social dynamics of the teaching-learning situation, one university tape records class or tutorial sessions as a basis for discussion of the intellectual, subject-matter, and interpersonal problems involved. The tapes are not considered as teaching paradigms but as real-life examples of the interaction that occurs between teacher and student. A second university is currently extending this idea by using videotapes of actual class sessions as material for discussion by groups of teaching assistants.

Patterns of formal characteristics

So far, the analysis of formal characteristics of the training programs has been in terms of individual mechanisms. It might be enlightening to find whether or not clusters of such devices tend to co-occur. In general, it appears that they do not. However, there seems to be a slight trend for programs which offer a graded sequence of training experiences also to have formal courses, systematic observation and "assisting" of older instructors, and a relative concentration of test supervisors. An attempt to find a cluster consisting of informal and individual supervision, relatively high teaching assistant autonomy, informal meetings and a lack of formal sequence was unsuccessful. The number of elements is so great that a hugh number of combinations is possible--and almost all of them seem to occur.

Substantive features of training programs

The previous section of this report dealt with the procedural forms for the training programs, Clearly it is possible to attain a wide variety of goals through the use of any given procedure. For example, either formal courses or individual meetings between teaching assistant and supervisor could be used to develop the skills involved in drawing up realistic objectives for a class session or a section of a course, or for practice in designing reliable and valid tests and other topics involved in the day-to-day conduct of classes.

This section seeks to identify those substantive areas which seem related to the teaching enterprise _and_ in which respondents report specific efforts to instruct teaching assistants. It represents, then, the degree of consensus that obtains as to "what every new college teacher should know". The topics will be reported here in the order of their frequency of occurence.

As might be expected, the most common concern is with concrete instructional procedures--those methods of presentation that have been found "to work" in some sense, and that seem to produce the greatest understanding and performance by students. This is the kind of information that is passed on from experienced teachers to beginners. Sixty-four percent of the programs report specific activities in this area. The remaining 36% implicitly take the stance that each teacher must learn to structure the problems for himself and to work out his own solutions. It is probable that informal meetings of teaching assistants associated with a given course, or individual contacts with a supervisor are the most frequently used methods of attaining this goal.

The second most common area of conscious attention is the planning of class sessions, sections of courses, or (sometimes) entire course content. This activity combines curricular considerations in interaction with the identification of the means available for achieving subject-matter goals. Almost one-half of the respondents mentioned this topic, involving as it does the development of course outlines, syllabi, reading list, etc.

More than one-third of the departments take special cognizance of the need for college instructors to develop some sophistication in the designing of tests, the development of appropriate criteria for the choice of test item forms, the analysis of test results as a means of improving teaching, and a consideration of the problems associated with different philosophies of grading. The completeness with which these topics are studied varies greatly, from the learning-by-doing approach to full considerations of the relation between item form and course objectives, and item analysis of test results to ascertain specific areas in which instruction is not eliciting in students the level of achievement desired. Many more programs operate on the learning-by-doing end of the continuum than on the more formal, technical end. Obviously, casual introductions to testing skills can be, and are, carried out with little structure, whereas attempts at developing a more knowledgable handling of the problems are most often associated with formal presentations (i.e., seminars and classes).

Ranking fourth in frequency (25% of the programs studied) are presentations of the philosophy, history and problems of higher education, or of the objectives and philosophy of a particular course. Interestingly enough, 21% of the respondents report specific efforts to increase the subject-matter competence of teaching assistants as part of the training program. This often calls for review of the course topics before taking them up in class--but in greater depth than that used in presentations to undergraduates. This procedure aims toward increasing the teaching assistant's grasp and understanding of the phenomena so that his explanations to undergraduate students will be more complete and helpful. Laboratory disiplines sometimes ask teaching assistants to conduct in advance the experiments which their own students will later perform. The intent being to alert the teaching assistants to the points where students customarily have problems and to facilitate the assistant's ability to explain and supervise the operations. It would appear that the same objective could often be achieved by careful design of the teaching assistant's own graduate courses--and indeed this idea was mentioned by one or two respondents.

Two areas in which there seems to be little activity are those of the psychology of learning, thinking, and motivation as applied to the classroom, and the introduction of the teaching assistant to other facets of the role of the college teacher beside the conduct of classes. Some programs, in attempting to deal with the latter point, encourage teaching assistants to attend some departmental meetings, to serve as academic advisors to undergraduates, to give "guest" lectures to large introductory courses (a function usually reserved for faculty), and to participate in faculty committees. However, the departments that do most of these things are rare.

Evaluation of programs and of teaching assistants

Previously published reports have supplied little systematic information on the methods used to assess the effectiveness of training programs or the performance of the individual teaching assistant. The present study was thus designed to determine the current state of the art. The reason for the scarcity of published data quickly became apparent when the question was asked. Almost universally, the first response referred to the difficulty of specifying the appropriate criteria for making evalutive judgments.

Nonetheless, in response to an inquiry of how the training program was evaluated for effectiveness, representatives of 98 departments replied. It was found that, partly because of the lack of "hard" information, many programs make use of more than one measure with the general intention of validating one against another. On the other hand, 24% of the respondents reported no systematic evaluation, often with the statement that they "wouldn't know how to go about it". Even here, of course, informal, intuitive judgments are often made. Under these conditions, personal opinions of interested and affected parties are almost certain to play central roles in the evaluation process. Four possible sources for such opinions suggest themselves immediately: the teaching assistants, the faculty, Ph.D. graduates of the department, and undergraduates. All are used but not equally often.

The use of data from undergraduates (usually in the form of course evaluations) presents some problems in interpretation. It is difficult to associate course evaluation responses to the training program unless there exists some baseline reflecting "control-group" conditions without the training program. The effect of large scale changes in the training for teaching assistants would be useful, but even here the need for caution in drawing conclusions should be obvious. This point is worth noting because 20% of the programs report the use of student evaluations in estimating the success of the training given teaching assistants--indeed 11 respondents report this as the only measure. The same interpretive caution holds true if undergraduate academic performance is taken as a measure of training--17% of the respondents referred to this as a criterion.

The most frequently cited source of opinion (38% of the cases) was the faculty, but most often from those directly involved in the training. Sometimes those were based on personal observations of the teaching assistants' performance, in others it represented a global impression of the effects of the program. The second most popular source was the teaching assistants themselves. About 30% of the programs acknowledge use of these data, usually gathered informally in conversations with the assistants.

Interestingly enough, only 5 departments reported post-Ph.D. follow-ups on their graduates who entered a college teaching career. However, this technique was adopted in a recent survey carried out on a national scale (11).

In response to the question about the methods used to evaluate the teaching assistant's performance, 126 departments replied. By far the most common criterion was faculty opinion--almost all respondents report that global, impressionistic judgments play a large role here. In less than half the cases, however, is this opinion based on actual visits to the classroom to observe how the teaching assistant performs. Most respondents refer to informally gathered information and feedback from undergraduates, including course evaluations. It should be pointed out that several respondents asserted that class visits are not particularly useful, either for evaluation or for guidance. They pointed out that the anxiety level of a teaching assistant during an occasional visit is apt to be high, and furthermore, that one class visit during a term (the modal number) does not afford an adequate picture of his teaching. Others suggested that effective teaching is to be judged by student performance rather than by particular teaching strategems the assistant may use. It is worth noting that the appropriateness of class visits as a measure of teaching performance has not gone unchallenged.

Other procedures used to evaluate teaching assistant performance include undergraduate evaluations of courses (25% of the program); the comparative achievement of students in the various sections of a large multi-section course; the graduate student's own academic performance. It should be apparent that a policy of comparing inter-section student achievement scores would almost inevitably be associated with a great deal of structure in the conduct of a course.

The general impression from this part of the survey was that systematic attempts to evaluate the performance of teaching assistants--and improvements in that performance--are fairly unusual. Such attempts are almost nonexistent in the case of evaluations of the programs themselves.

Opinions regarding strong and weak points of current programs

The respondents in each of the 146 departments and schools indicated those aspects of the training programs which appeared to be the more successful and those most in need of improvement. A total of 152 judgments were made of "successful" features by representatives of 99 different programs. These are classified into four general groups:

1. Approximately 37% of the successful features indicated benefits accruing to the organizational and administrative aspects of conducting the courses in which teaching assistants are functioning. These include the fact that all sections are moving at the same pace, examinations are common in content and the administrative and classroom needs for instructors of different sections are being met without undue difficulty -- in short -- that the logistical job is getting done. It is perhaps significant that more than one-third of the total number of responses imply that the principal advantages concern the administrative and instructional needs of the department rather than the training of the teaching assistants.

2. The second most numerous group of replies (29%) dealt with the guidance being provided teaching assistants by "master" teaching assistants or by supervisory faculty. There appeared to be a clear implication of satisfaction with the supervised development of neophyte teachers which allowed experienced teachers to pass on skills and ideas to the apprentice instructor.

3. Almost as frequent (22%) were comments directed toward the quality of the teaching assistants and their development as teachers. This would appear a step further toward centering on the concerns, needs, and characteristics of the assistants themselves and a move away from more direct institutional and logistical interests.

4. The remaining 7% of the comments tended to go beyound teaching _per_ _se_ and to concentrate on the benefits which appear to accrue to the undergraduates resulting from the special training given the teaching assistants. These judgments tended to come from departments with heavy undergraduate teaching commitments.

Representatives of 99 departments and schools responded to the question about needed improvements in training programs with a total of 173 suggestions. It will be noted that there appears to be little concern about the need for further improvements in administrative or logistical arrangements; attention is focussed more directly on the teaching function. Apparently, the mechanical problems of organizing and coordinating multi-section courses have been largely solved or accepted as an inevitable and continuing problem.

Concern with the often conflicting interests between teaching on the one hand and research and other scholarly activities on the other was present in almost half the replies. This usually took the form of decrying the relative lack of interest in teaching by both graduate students and faculty and of proposing better selection and/or recruitment procedures in an attempt to redress the balance. It was consistently pointed out that research assistantships lead directly to dissertation topics, to expeditiously achieved Ph.D.'s and to professional advancement, whereas teaching activities tend to delay the progress of the student through graduate school. In addition, it was asserted that in many disciplinary areas, teaching is only spoken of soto voce. In the face of this kind of orientation, equalizing stipends for research and teaching assistantships was seen to be, in itself, a fairly ineffective attack on the problem of providing adequate training for the teachers of a sizable percentage of our undergraduate courses.

Approximately two-fifths of the respondents saw a need for more direct training and guidance of teaching assistants. This includes a number of calls for pre-service sessions before the beginning of the fall term, and for more formal instruction in the problems faced by the college teacher and his resources for dealing with them. One important component of this was the voiced need for released time in which faculty members could contact and guide the assistants in their teaching activities. These respondents believed a great deal more could be done if supervising time was made available.

As a final note only one respondent mentioned dissatisfaction with current procedures for evaluating the training program or teaching assistant performance. Whether this finding was due to a general lack of concern with the evaluation problem or to a belief that evaluation is adequate as it is now done or to a resigned acceptance of the idea that evaluation is not feasible, is not known.

DISCUSSION

The departments and schools cooperating in this investigation reflect a few common and rather general attitudes vis-à-vis the use of teaching assistants. The assistantships are most often seen as a means of providing undergraduate instruction and of supporting graduate students; they are seldom seen as a vehicle for the preparation of college teachers. The primary focus is toward seeing that prescribed material is presented to students in a certain sequence, that multi-section courses progress toward common goals, and that specific administrative procedures are followed.

However, one base-line attitude takes as given the lack of graduate student interest in teaching. Hence, there is a felt need for faculty control of most details of the program in the belief that the teaching responsibilities will not otherwise be adequately met. The faculty of departments whose representatives expressed this sentiment were reported to be heavily research-oriented and tend to devote relatively little time and effort to teaching activities. This stance is usually accompanied by a large measure of faculty control of decisions affecting courses and the way they are conducted. Such an attitude tends to be operationalized in terms of highly structured syllabi and relatively little delegation of responsibility to the teaching assistants. Mechanisms for dialogues about teaching (where they exist) are usually so constructed that the faculty supervisor is seen as a primary giver of information as well as the evaluator of performance. Distrust of the competence of teaching assistants in general is rather often verbalized. Frequently, this situation results in a high degree of predetermined structure for the teaching assistant but with little supervision of his performance.

Another dominant attitude appears to have dual foci --the adequate presentation of subject-matter while fostering the development of teaching skills in the assistants. Representatives of departments taking this position tend to speak highly of the caliber of their teaching assistants. Attention may still be focussed on departmental teaching needs but there seems to be a significantly greater willingness to entrust responsibility to the teaching assistant. Here the assistant enters more completely into the planning and implementing of the course. Syllabi tend to be more loosely constructed, and the young teacher is encouraged to develop his own initiative. Such a program usually involves more supervisory time by experienced teaching assistants or by faculty. Another mark of the dual-focus is the attempt to develop the autonomy and freedom of the teaching assistant by providing relatively large amounts of supervision and guidance early in his teaching career but less so as he gains experience. Mechanisms are created to facilitate interaction between teaching assistants, and they take a more active role in departmental affairs and are accepted as junior colleagues by the faculty.

Teaching assistants are usually seen as performing a useful service to the department but not one that is professionally advantageous to the graduate student himself. For example, no record may be kept of the teaching assistant's performance as a teacher. Furthermore, it is not uncommon for the new teaching assistants to be given brief talks by department chairmen and/or college deans assuring them that theirs is an important task. However, when guidance would be helpful, particularly in the first few weeks, there is little official action or concern manifested for the problems of these novice teachers. It would not be surprising, therefore, if teaching assistants conclude that their tasks are not important since the institution invests very little time and energy to supervise, help, and evaluate their efforts --as the department would do if the activity were in fact a matter of real consequence. Despite these circumstances, it is significant that many assistants devote rather large amounts of attention and effort to their teaching activities and in other ways to demonstrate the acceptance of their responsibility to their own undergraduate students.

It must not be forgotten that two-thirds of the faculty members who provide guidance and help to the new teaching assistants also carry, according to their own reports, normal departmental administrative and teaching loads. With their strong dedication to scholarship and research, faculty members tend to view "pedagogy" as something of a second-class endeavor. In consequence, the supervisors of teaching assistants, unless they have independently established their positions as scholars, occasionally expressed doubt about their opportunities for professional advancement. In general, this survey confirms the tradition that the status of a faculty member in the eyes of his colleagues depends almost wholly on his scholarly productiveness and very little on activities related to the training of teaching assistants. These values may be less true when the official stance of the department--most often personified in the chairman--involved forthright support for the teaching assistant training program. The inference seems clear that substantial strengthening of training programs will depend heavily on fairly high-level administrative decisions within the department.

In this connection, distinct institutional differences were observed in the amount of attention given to teaching assistant training. The fact that some campuses seem to be characterized by energetic efforts in several departments implies a stronger and more active interest in the teaching assistant problem at the supra-departmental level. It will be recalled that the first contact with each institution was at a high administrative level where the request was made that the investigator be referred to those "departments which are most active in teaching assistant training, and/or appear to have the most effective programs." References were nearly always made, but when an inquiry was addressed to the named departments, a not uncommon response was to the effect that their activities could not honestly be described as a training _program_ but as an ad hoc arrangement to handle immediate staffing problems in undergraduate courses. The conclusion seems warranted that significant changes in training programs are closely related to specific and vigorous central administrative action as well as at the department level.

The recent literature dealing with the concerns of higher education carries several warnings of an impending shortage of college teachers, e.g., Cooper (12) and _The Flight from Teaching_ (19). These estimates tend to be balanced by the more conservative views of Berelson (5) and Cartter (10) who point out that the production of new Ph.D.'s is likely to meet all reasonable demands within the next few years. It is here suggested that the question may not be properly put since the issue has been based on changes in the proportions of Ph.D.'s who enter (or continue in) college teaching. It is quite probable that the greatest absolute increase in the ranks of college teachers is and will be among the teaching assistants. For instance, Cartter's (10) data indicates there was an average yearly increase in the production of Ph.D.'s of about 1200, for the period 1961-65. Of these 45%, or 540, are estimated to have joined the ranks of college teachers. The same report contains information that permits an estimate of the average yearly increase in "junior instructional staff"--mostly pre-doctoral teaching assistants. This increase, in full-time equivalents, is 900--all of whom by definition engage in college teaching. Here, then, is a rapidly expanding corps of de facto college teachers. The increase in the number of new doctoral graduates who enter college teaching may not be as important as the number of teaching assistants added to departments' instructional staffs. It may be suggested that the training and supervision of assistants is functionally more significant with regard to undergraduate instruction in large universities than is the production of more Ph.D.'s. If this is indeed the case, a re-orientation of our efforts appears to be indicated.

Further inferences may be drawn regarding the question of whether training in college teaching is better given early or late in an individual's graduate career. Our data show that two-thirds of the present teaching assistants began serving in this capacity in their first graduate year. Various plans, such as those reported by Dunkel, (16) and Middle-brook (28), take the most appropriate time to be before the attainment of the doctoral degree, when the problems of assuming the role of a full-time faculty member are most salient. Furthermore, a persuasive argument such as that of Diekhoff (14) can be made that such training in instruction should be left to the first employing institution, and not assumed by the degree-granting university at all. However, since a sizeable proportion of undergraduate credit hours is gained in courses or sections taught by teaching assistants, it is clear that in the present real world, these options are not really open. If the quality of undergraduate instruction in universities is not to suffer, it would appear that more concerted measures must be taken to assist graduate students in their teaching activities.

One area of instruction-related activity in which faculty members often profess a feeling of insecurity is the evaluation of student achievement. A great deal of specific and useful information is available on the topic, but it is probably not widely utilized by the subject-matter departments. If the point is accepted that the content *and the form* of classroom testing have a strong influence in the direction of student's study efforts, the importance of reliable and valid testing procedures becomes an extremely relevant aspect of teaching skill. Every large university has on its campus tests and measurement specialists possessing the technical knowledge which could contribute to raising the quality of the teacher-made tests to measure student achivement. It would appear that inter-departmental workshops in testing could make efficient and effective contributions to the training of teaching assistants in respect to their evaluating responsibility as a college teacher.

In conducting the investigation, time did not allow the systematic sampling of opinions from the teaching assistants themselves about training in instruction. The views and procedures presented here are, then, those which may be considered "official." A broad-scale study by Clark (11) suggests that a quite different picture of the functional aspects of training would have emerged from contacts with the recipients of the training. Clark reported the views of new faculty members who had, as graduates, served as teaching assistants in many of the same universities studied here. Briefly, they reported that their most helpful experience was actual classroom teaching *with guidance*. However, over half of them asserted that such guidance was minimal, and over one-third that their work was seldom evaluated. As might be expected, they held that formal courses in higher education and in teaching methods were of little benefit. Findings such as this should cast some doubts as to the consistent effectiveness of the "individual supervision" of teaching assistants which is claimed by a large majority of the departments contacted in the present study.

A note is in order about the manner in which teaching assistants are evaluated. The most familiar device involves one or two classroom visits to observe the teaching assistant's behavior in conducting a class. In nearly all cases, such visits are arranged in advance, and it is to be expected that what is seen is a special performance which is more successful in tapping the teaching assistant's capacity (under stress) than sampling his usual level of activity. In addition, such procedures implicitly assume that virtually all the important dimensions of the teaching assistant's contribution are clearly evident in the way he deports himself before a class. No respondent reported attempts to determine whether assistants could clearly state their personal objectives for the course, or whether undergraduates showed progress in attaining those objectives.

Despite the preceding observations, it would not be accurate to close this discussion without reporting a fairly consistent impression that in many departments, there is growing concern for the problems of training graduate students as teachers. In most cases, the logistical tasks of staffing and conducting multi-section courses have apparently been surmonted and the investigator was left with the feeling that many departments and institutions are ready to take the next constructive step--the better preparation of teaching assistants for their classroom roles. If nothing else, the interest in, and the cooperation extended to, the study offer abundant evidence on this point.

IMPLICATIONS AND RECOMMENDATIONS

This section of the report will consist largely of a proposed model for training teaching assistants. In the main, it represents an integration of devices and mechanisms which are currently in use in one or more departments and which have promise of contributing significantly to teaching performance. In addition, a few recommendations will be made regarding possible means for the systematic evaluation of both teaching assistant performance and of the programs themselves. As far as we know the suggested training procedures and/or evaluation measures are not currently in use.

A Model for a Training Program

A viable model for a training program should meet the following criteria: (a) Each teaching assistant will receive only such instruction and guidance as is necessary and sufficient to enable him to plan and conduct an undergraduate class in his area of subject-matter competence; (b) A model should be sufficiently flexible to serve the basic needs of the various disciplines; (c) All aspects of a training program should be directly applicable to real instructional problems and the training time be kept to a minimum; (d) The most useful form for a training program is an evolutionary one, in which systematic and continuing self-evaluation is a design feature; and (e) An efficient program will minimize increases in faculty time allotted to supervisory activities.

It is clear that unambiguous and vigorous support for a training program must be given by individuals who occupy positions of power and influence in the department and/or the institution. This appears to be a *sine qua non* for the establishment and continuation of the successful programs that were observed in the present study. It could be, then, that the first step is convincing appropriate power figures of the desirability of the effort, and enlisting their active support.

Some of this country's most productive but privately controlled institutions do not face the necessity of dealing with rapidly expanding undergraduate populations, and have little need of teaching assistants for on-campus instruction. However, a sizeable proportion of their doctoral graduates enter college teaching, many times without ever having faced the problems attendant upon preparing for and conducting an undergraduate course.

It is suggested that every graduate student who contributes to the instruction of undergraduates should receive some amount of guidance and supervision. However, the various subject-matter areas differ greatly in the proportion of their doctoral graduates who enter college teaching careers. If an individual does not aspire to such a career, but, as a graduate student, serves some minimal amount of time as a teaching assistant, he should nevertheless, be provided such guidance as to enable him to carry out his assigned duties adequately. On the other hand, a teaching assistant who plans a teaching career should receive more extensive training. More training in the case of the first individual is wasteful; less in the case of the second may be a dereliction of duty.

A training program that is likely to prove most useful to a beginning teacher should start out with considerable structure and direction. As he gains in self-confidence and competence the training program should encourage the growth of his initiative, autonomy and responsibility. Furthermore, it is desirable to establish a common set of dimensions along which the teaching assistant's performance can be assessed throughout his training. If this is done, it should be possible to obtain more accurate estimates of his improvement as a teacher and thus, indirectly, evaluate the contributions of the training program.

The "optimal" model that emerges from the survey is composed of three functional stages labelled for convenience: apprenticeship, assistantship, and instructorship. Each stage should be defined in terms of the teaching assistant's competence and responsibilities, rather than in terms of time periods, such as academic quarters, semesters or years. That is, as the individual shows himself ready to undertake more demanding teaching tasks, they should be available and waiting for him.

The "apprentice" stage should be essentially a pre-service period, one that does not entail conducting a class on a regular basis. During this time, the individual familiarizes himself with the content, approach and structure of the course he will later teach. He may set up laboratory equipment, and should actually conduct the experiments which undergraduates carry out in the course. He may help draw up reading lists, do bibliographic research, and will regularly observe the teaching of one or more experienced instructors, by means of class attendance or videotapes, films or one-way viewing arrangements. These should be accompanied by brief conferences at which the instructor explains the rationale for his approach and methods. The apprentice will become familiar with the departmental and college regulations governing the conduct of undergraduate classes. He will help construct and score exams, and read and score papers and laboratory reports. He will have available a copy of a Handbook for New Instructors, which will provide information on the facilities and resources available to him and relevant to the teaching task. He will plan and conduct a few (four or five) class sessions under observation of an experienced instructor, who will then make suggestions and criticisms of his performance. During this period, he will not have primary responsibility for a specific course, but will function as an assistant to an instructor--an experienced teaching assistant or a faculty member--who does. He would, however, be making both direct and indirect contributions to the conduct of the class.

In the second ("teaching assistant") phase of the program, the individual will be given a general outline of the course and will be expected to conduct a class of his own, planning class sessions, choosing methods of presentation, and evaluating student achievement. He will have available to him on a regular basis, the advice and guidance of an experienced teaching assistant--an "instructor" as the term is used here. During this time also, he will participate in a workshop on classroom testing, focusing his attention on the development and analysis of the tests he uses in his class, and on the problems of incorporating these instruments into his overall teaching plan. There should also be available to those for whom it is appropriate, training in group dynamics and in programed instruction (as a model more than as a technique). This stage should be marked by consistent supervision--and with special emphasis toward remedial measures. An evaluation scheme would be especially valuable at this point.

It is recommended that only teaching assistants with an expressed interest in college teaching should advance to the third ("instructor") phase of the program. At this level, the individual should be capable of structuring the content of an entire course, choosing appropriate texts and readings, drawing up syllabi, and conducting classes. In addition, however, he may assume a guiding and/or supervisory role relative to trainees in the apprenticeship or assistantship stages. In order that he may carry out these duties, his teaching load should be reduced and his guidance functions within the training program be considered part of his work assignment in the program. The "instructor" should be better able to relate to the apprentices, having recently dealt with the same problems, and he should also be much more readily accessible than faculty supervisors. Overall direction of the program will, however, require faculty leadership, but most of the day-to-day details would be handled by "instructors."

It should be recognized that the guidance activities of the "instructor" are part of *his* training as a prospective college teacher. In helping the beginner and explaining his reasons for adopting certain strategems, the "instructor" is compelled to examine his own ideas and convictions and to develop a coherent conceptual framework for his advice and actions.

Lastly, in this phase the "instructor" should participate to a limited extent, in departmental affairs, such as service on faculty committees, attendance at some faculty meetings, participation in curriculum review, and pre-planning of courses. The aim here is to introduce serious young teachers to the full range of extra-classroom and administrative aspects of the college teacher role.

Evaluation of Teaching Assistants and Training Programs

Improvement is needed in the current procedures used to evaluate teaching assistant performance and program effectiveness. The remainder of this section embodies some proposals which would be useful in this regard.

Many attempts have been made to define and assess "good teaching"--so far without notable success. It may be possible to avoid the impasse to which this line of thinking leads, however, by framing the question somewhat differently and focussing on *effective* teaching. It is suggested that the proper criterion of effective teaching is student performance, and that the proper measure is a qualitative, and where feasible, a quantitative comparison between this performance and the teacher's objectives--*in whatever form the latter are defined and stated*. An appropriate measure of teaching effectiveness, then, is the degree to which the students achieve the objectives which the teacher has set for the course.

This suggestion implies that teaching effectiveness cannot be measured at a single point in time, such as by occasional observations of classroom behavior. There are at least four critical points at which performance can be assessed:

1. It is apparent that effectiveness can only be measured if instructional goals are known. Therefore, the first information needed is a statement of the teaching assistant's objectives. The supervisor can then judge them for *appropriateness* (i.e., scope and sophistication) and *feasibility* (i.e., reasonableness in terms of the capacities of the student population making up the class). In the apprentice stage, these judgments will be made of the teaching assistant's objectives for a single class session; in the teaching assistant stage, they can be applied to objectives for a sequence of class meetings dealing with a broad topic within the course; and in the instructor stage, the objectives in question will be those for an entire course.

2. The second point at which evaluation data can be collected is the teaching assistant's statement of how he intends to measure or identify the attainment of his objectives. These statements can be judged by the supervisor in terms of appropriateness, adequacy of coverage, and the discriminating power of

the assistant's proposed measuring devices and procedures.

3. The third point at which teaching effectiveness can be assessed is the degree to which student performance approaches the stated objectives. Here the supervisor can make qualitative, and, where reasonable, quantitative comparisons. The results of these comparisoms will be forwarded to the teaching assistant to serve as a basis for future improvement.

4. The fourth point at which evaluation can be carried out is in determining the degree to which the teaching assistant adjusts his objectives, teaching methods, or testing devices in the light of the feedback generated in the preceding step. New teachers will not, of course, achieve most of their objectives, but any serious teacher can be expected to adapt his procedures in ways that will bring student performance more in line with his objectives, (or vice versa).

By applying an evaluation scheme somewhat like the above, it should be possible to trace the growth in the teaching assistant's effectiveness as a teacher. When a teaching assistant can state instructional goals which will be accepted by his supervisor as proper and attainable, can devise testing procedures which will indicate when the goals have been achieved, and can then demonstrate (either objectively or in the judgment of an expert) that his students have indeed achieved them, it is reasonable to identify him as an effective teacher. It is assumed that a reliable and valid measure of teaching effectiveness will show predictable changes at each of the four points outlined above--changes which can be associated with greater experience and training, and that experienced teachers will, on the average, score higher on these dimenions than will beginning assistants.

It is proposed that the evaluation of the training program, per se, should follow a roughly analogous course--that is, a clear statement of the functional goals of each device or procedure and a comparison between this statement and the achievement of those goals. A few of the specific evaluation devices that may prove useful are:

1. Comparison between the goals of each phase of training with the attainment of those goals (as indicated above).

2. An evaluation of the teaching effectiveness of Ph.D. graduates before the introduction of the training program, will provide a partial baseline against which to judge changes.

3. The four basic evaluation points can be used to identify changes in the mean level of teaching effectiveness of participants and non-participants in the program.

4. Records can be kept of any changes which occur in the proportion of graduating Ph.D.'s who enter college teaching, and of available indices of career success.

The preceding model is conceived as an evolving entity and the feedback which will result from regular and systematic evaluation will assure that its relevance and flexibility is preserved.

SUMMARY AND RECOMMENDATIONS

The published literature presents little precise information on the methods currently being used to attract and to prepare young scholars for the college teaching career. A large majority of graduate students do serve as teaching assistants at some period during their graduate education, but there has been little detailed information on the extent and nature of the pedagogical training they receive. For these two reasons, it was decided that the proper focus for a study of college teacher training was the teaching assistantship in our major universities. The issues become especially important in the light of recent statements about the number and the quality of the college teachers being produced.

This investigation was designed to provide (a) a report of recruitment activities in a number of prominent institutions, (b) a factual summary of the administrative, formal, and substantive features which are characteristic of the more active training programs in some 40 - 50 of our universities, and (c) a description of a general model for a training program which might emerge from an integration of the most progressive aspects of the programs studied.

Letters were sent to administrative officers of 50 large universities, requesting identification of the "three or four most active (teaching assistant) training programs" in the institution. On the basis of the replies to these letters, questionnaires were sent to 193 departments and administrative officers in 44 institutions. From this and other information, 20 universities were selected for on-site visits and structured interviews were conducted with 105 department chairmen, teaching assistant supervisors, and faculty members involved in training. In all, data were collected from 71 humanities, 14 social science, and 51 natural science departments, plus 10 professional schools and 26 administrative officers above the department level, representing a total of 42 institutions.

Information on recruitment programs was obtained during the 20 on-site visits. Only four of the institutions report continuing, systematic, efforts toward identifying potential college teachers at the high school and undergraduate college levels and encouraging their interest in such a career by means of personal contacts, attendance at conferences on college teaching, and acceleration of their academic preparation. The remaining universities tend to rely on informal, decentralized activities.

Information about training programs, obtained from mail questionnaires and from on-site visits, was codified and tabulated under five general headings: (a) administrative factors, (b) the population receiving training, (c) formal characteristics, (d) substantive features , and (e) evaluation of training program and of teaching assistant performance.

It was found that nearly all training programs are department-based and virtually all relevant activity is controlled by, and confined to, department personnel. Two administrative factors appear to be crucial to the establishment and continuance of training programs: (a) The active involvement of senior members of the faculty who command the professional respect of their colleagues and who stand in positions of influence. (b) The commitment of individual faculty members who have the interest and capacity to serve as effective administrators of the training program. Sometimes these two roles are combined in the same individual (most often the chairman) but in large departments, they tend to be separated.

In about one-third of the departments there seems to be no overall supervision of teaching assistant training--each faculty member provides such supervision and guidance as he sees fit for the assistants who work in his course. Interestingly enough, despite the publicity given in recent years to the need for more college teachers, it was the opinion of our respondents that the proportion of their Ph.D. graduates going into college teaching has not changed significantly.

Typically, teaching assistants begin their instructional duties in their first graduate year, but without much formal consideration of their teaching potential or competence. In almost half the departments, the average teaching assistant will teach for three or more years. This tends to occur more frequently in humanities departments than in the social or natural sciences, where the average is closer to one and one-half years.

Two factors were fairly often noted by respondents as acting to inhibit the development of training programs. The first was the lack of a broad-based faculty interest in the training-supervision role; the second, the shortage of available staff time for carrying out the demanding tasks of developing competent teachers from the graduate student body.

Considerable variation exists in the scope of activities associated with a given program, ranging from a brief orientation meeting and a few "brown-bag" discussions to formal course offerings, regular individual meetings between teaching assistant and supervisor, and several class visits by the supervisor, while others boast a clearly defined three-level hierarchy with a faculty member-in-charge, a cadre of experienced teaching assistants who serve as group leaders, and relatively large numbers of comparatively inexperienced "apprentices." As might be expected, the more formal features are usually associated with the large departments.

The model pattern of training activities consists of brief introductory meetings of all new teaching assistants, followed by individual supervision by faculty members and weekly meetings (largely administrative in nature) of all course instructors. "Individual supervision" more often takes the form of fortuitous conversations than of regularly scheduled meetings. One or more visits by the supervisor to the assistant's class is reported in approximately 40% of the cases.

With respect to the autonomy and responsibility of teaching assistants, it was reported that they participate to some degree in the choice of text and of course content in about 75% of the cases. Practically all teaching assistants in a multi-section course, work from a common syllabus or outline and about half of these are highly structured with regard to sequence of topics, time allotted to each, and mode of presentation. Under these conditions, there is an obvious constraint in the range of decisions open to the individual assistant. In most cases, assistants play some part in constructing examinations and in almost one-half, they assign the final grade of the student--often subject, however, to review by the faculty supervisor.

In nearly all programs it is reported that as teaching assistants gain in experience, they are granted increased freedom and autonomy, but only a relatively few programs officially recognize this change by such devices as systematically reducing the prescriptive character of syllabi, or increasing the participation of the teaching assistant in curricular decisions. In approximately two-thirds of the departments, increased experience also brings with it increases in stipends.

Two procedures seem to be gaining in popularity: pre-service training and orientation sessions (from four hours to two weeks in length) and the use of experienced teaching assistants in guidance and supervisory roles under the overall direction of a faculty member. On the other hand, very few departments make use of formal courses or seminars on college teaching.

As might be expected, the instructional skill and knowledge given most attention in training programs are those seen as most directly relevant to the teaching assistant's day-to-day duties. Emphasis is given to information about specific teaching strategies which appear well adapted to certain topics, drawing up course outlines, syllabi and reading lists, and at least an occasional brush with the problems of evaluating student achievement. The emphasis and completeness of the fairly technical procedures of test construction and analysis vary from asking teaching assistants to submit occasional test items to be used in course examinations to detailed consideration of the characteristics of effective test items of various kinds, and the objective analysis of test results. In general, the former end of the continuum is associated with individual supervision situations, while the more formal skills are usually acquired in regular courses or workshops.

The evaluation of training programs and teaching assistant performance is usually based on global, impressionistic, opinions of faculty members. There appear to be few systematic attempts to develop more objective criteria for such evaluation. When respondents were asked to specify areas in need of improvement, the most common response was a call for more attention to, and interest in, teaching by both graduate students and faculty.

It was concluded that, in most departments, teaching assistantships are seen primarily as a means of providing undergraduate instruction and financial support for graduate students, rather than the explicit training of prospective college teachers. Most departments seem not to see the latter task as a major responsibility. This condition is reflected in the tendency for other forms of scholarly and/or research activity to be preferred by both graduate students and faculty.

It was often noted that the most progressive training programs exist where the department chairman is centrally involved. The same relationship probably obtains at the university level, to judge from the fact that there are distinct institutional differences in the amount of attention given to teaching assistant training. It is likely that a real strengthening of teaching assistant training is heavily dependent on vigorous support at higher administrative levels both within and above the department.

With respect to the "teacher shortage", it is suggested that the increase in the number of new Ph.D. graduates who enter college teaching may not be as important as the quality of the training that is afforded teaching assistants, since their numbers are increasing at a faster rate than any other group of potential or actual college teachers. The interest shown in this study at almost all universities indicates that many departments and institutions are giving the problem serious attention and are ready to take constructive action.

A "model" of a training program is proposed which consists largely of an integration of the most effective and progressive features of current programs. The "optimal" program of training would have three functionally defined stages. The activities of the graduate student in the first stage would consist of observing and assisting in a class taught by an experienced instructor or serving as a laboratory assistant under the supervision of the course instructor. In the second stage, the assistant will conduct a section of an introductory course, with diagnostic and advisory help provided by a "master" teaching assistant or a faculty member. He will also receive instruction in the strategies and techniques of classroom teaching. The third stage ("master") assistants are those who seriously consider college teaching as a career and have evidenced the requisite capacities, will serve as mentors and guides for assistants in the first two stages, while further developing their own teaching style and philosophy of higher education.

It is further recommended that attempts be made to achieve more reliable and valid evaluations of teaching assistant performance. A plan is proposed whereby "effective" teaching may be defined and assessed. The basic scheme calls for clear statements of course objectives by the teaching assistant and of the procedures to be employed to identify or measure these goals. The supervisor would compare these statements with the class achievement toward those objectives. Judgments involving these evaluation features may be made at several points in the training program for each teaching assistant. A similar suggestion is made regarding the evaluation of the program itself--clear statement of the functional goals of each procedure followed by comparison between these statements and the perceived achievement of the goals.

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APPENDIX A

Dear Dr. ____________,

Our Center has been asked by the Joint Committee on College Teaching of the Association for Higher Education to make a study of the methods used by major universities for selecting and training the graduate student teaching assistants who then conduct recitation, discussion or laboratory sections of undergraduate courses. The matter is important because these are the individuals who go on to become our new college teachers. The real question is: What kinds of training are our future college teachers (as teachers) getting? Most of the graduate universities are fully aware of the importance of this problem but someone needs to take the initiative to bring together information about the distinctive features of the training programs at the individual institutions so that all may benefit from our pooled knowledge.

The focus of the study will be the approximately 50 universities which now graduate 90 percent of the Ph.D.'s who subsequently enter college teaching. Because ______________ University is among these important contributors to our nation's teaching force, we ask your cooperation in supplying us with the information which will enable us to focus our inquiry most efficiently.

We would very much appreciate your giving us the name of the Dean or other person who can provide us with the details of the steps taken by __________________ to select and train new instructors, especially teaching assistants. If, in your judgment, our inquiry might better be made to separate departments, would you simply indicate the three or four that have been most active with respect to such training. I am sure you will agree that our final report must contain more than general descriptions of campus-wide programs. All information received will be used to describe general trends; cooperating institutions and departments will not be identified individually.

In the course of the investigation, we hope to visit the _______ campus during the coming spring in order to gain some first-hand knowledge of your activities. In order to make that visit maximally productive, however, we are attempting to collect as much information as possible by mail. When our investigation is complete, hopefully within the next six months, we plan to make the complete results available to each of the 40-50 graduate universities that are being asked to participate.

Sincerely,

Frank M. Koen
Research Associate

FMK/er

APPENDIX B

THE UNIVERSITY OF MICHIGAN
The Center for Research on Learning and Teaching
1315 Hill Street
Ann Arbor, Michigan

A STUDY OF FACTORS RELATED TO THE TRAINING OF TEACHING ASSISTANTS IN UNIVERSITY GRADUATE DEPARTMENTS

This is an inquiry concerning programs for the training of graduate student Teaching Assistants — a cooperative survey between the University of Michigan and a special Joint Committee on the Association of Higher Education and several of the learned societies and supported by a grant from the U. S. Office of Education. All information will be used without identification of the specific institution or department.

Rather than attempting a complete questionnaire survey, we are trying to identify a representative sample of particularly successful training programs. We will then try to visit as many of these departments as possible to gain more detailed information.

Name of responding institution

Name and title of person responding

Name of responding department

The following quantitative information will help us to understand your descriptive statements and will provide a common base for reporting inter-institutional data:

1. What is the number of Teaching Assistants presently employed by the department?

2. What is the approximate number of Ph.D.'s granted by the department during the past 5 years?

3. What is your estimate of the percentage of these Ph.D.'s who went directly into college teaching? ________%

4. Has this percentage changed significantly during this 5-year period? ________ If so, in what way?

5. How long has the present training program for Teaching Assistants, or one of the same general type, been in operation?

Descriptive Information about the Program — In this section, please include those features of training which are more or less standard for all teaching assistants in the department.

1. We would like to know something of the form that the training takes. Please indicate which of the elements listed below are included in your program.

    a. Formal courses (please give the names of the courses, and the number of credit hours).

    b. Meetings of informal seminars or groups (Indicate the frequency of meetings, and the approximate total number.)

    c. Planned observation of skilled teachers, other than in regular graduate course work (Please give amount.)

    d. Serving as assistant to an experienced instructor — setting up lab equipment, reading exams, etc. (For how long?)

    e. Teaching under supervision (How is supervision and guidance provided and by whom?)

    f. Any other kind of training and supervision which is a regular part of the program.

2. Is there a regular sequence to the elements of the training program? For example, formal course followed by classroom observation followed by...etc.

3. We are interested in the content of the instruction received by the Teaching Assistant in the training (content related to training for teaching as distinct from content of a subject matter area). Please indicate whether instruction is given in any of the following topics.

   a. Planning the individual class session and/or course — choice and sequence of topics to be presented, etc. (Please indicate the form of instruction: Formal course, informal meetings, seminar, etc.)

   b. Teaching procedures, classroom testing, etc. (In what form is instruction given?)

   c. Psychology of learning and motivation (form of instruction?)

   d. Other topics on which instruction is provided

4. What form(s) does the evaluation of teaching assistants' performance take?

5. By what means do you try to evaluate the effectiveness of the training program itself?

6. Do others (than Ph.D. candidates) receive training for college teaching via all or part of the program? For example, M.A. candidates, part-time instructors, etc. If so, what is the extent of their participation?

7. What do you consider the most successful aspects of the training program as it is presently conducted?

8. Where would you like to see improvements made?

NOTE: If the above questions miss significant aspects of your training program — form, content, objectives, innovations — please use the space below and/or on the back for whatever additional comments you consider desirable.

Please return one copy of this form to: Dr. Frank M. Koen, Research Associate (at the above address) and retain the other for your files.

APPENDIX C

A Total List of University Units Contacted

Boston University
    Departments
        Biology
        Chemistry
        English
        Philosophy

Brown University
    Departments
        English
        Geological Sciences
        Physics
        Political Science

Catholic University of America
    Departments
        Chemistry
        Physics

Clark University
    Departments
        History, Government, International Relations
        Mathematics
        Psychology

Columbia University
    Departments
        Chemistry
        English and Comparative Literature
        History

Cornell University
    Departments
        Chemistry
        English

        Section of Genetics, Development and Physiology

Duke Univeristy
    Department
        English

Emory University
    Department
        English

Florida State University
  Departments
    Chemistry
    English
    Modern Languages

Fordham University
  Departments
    Chemistry
    History
    Sociology and Anthropology

Harvard University
  History Department

Indiana University
  Departments
    English
    French and Italian
    German
    Spanish and Portuguese

Iowa State University
  Departments
    Chemistry
    Zoology
  College of Home Economics

New York University
  Departments
    Chemistry
    English

Northwestern University
  Biological Sciences Department

Ohio State University
  Departments
    English
    Chemistry
    Mathematics

Oregon State University
  Departments
    Chemistry
    Physics
    Zoology

Pennsylvania State University
    Departments
        Chemistry
        English
        History
        Psychology
        Speech

Princeton University
    Departments
        English
        Chemistry
        History
        Romance Languages

Saint Louis University
    Mathematics Department

Stanford University
    Departments
        Electrical Engineering
        English
        French and Italian
        Mathematical
        Modern European Languages (data from German only)

Tulane University
    Departments
        Chemistry
        English
        History
        Mathematics
        Spanish

University of California
    Departments
        Chemistry
        Comparative Literature
        English
        French
        German
        Physics
        Zoology

University of Chicago
    Departments
        Education
        History

University of Cincinnati
    Departments
        Chemistry
        German
    School of Design, Architecture and Art
    School of Music

University of Florida
    Departments
        Accounting
        Engineering
        Economics, School of Business Administration
    College of Education

University of Illinois
    Departments
        Engineering
        English
        French
        History
        Physics
        Psychology
        Rhetoric

University of Iowa
    Departments
        English
        Geology
        German
    School of Music

University of Kentucky
    Departments
        History
        Mathematics

University of Maryland
    Departments
        Chemistry
        English
        History
        Mathematics
        Psychology
        Zoology

University of Michigan
- Departments
  - Astronomy
  - Botany
  - Chemistry
  - English
  - German
  - History
  - History of Art
  - Mathematics
  - Philosophy
  - Physics
  - Political Science
  - Psychology
  - Romance Languages

University of Minnesota
- Departments
  - Chemistry
  - English
  - Mathematics
  - Psychology

University of Missouri
- Departments
  - English
  - Geology
  - History
  - Romance Languages
  - Zoology
- College of Arts and Sciences

University of Oregon
- Departments
  - English
  - Journalism
  - Psychology
  - Sociology
- School of Health, Physical Education and Recreation

University of Pennsylvania
- Departments
  - Biology
  - English
- College of Germanics

- University of Texas
  - Departments
    - English
    - Government
    - History
    - Romance Languages

- University of Virginia

- University of Washington
  - Departments
    - English
    - Germanic Languages and Literature
    - Mathematics
    - Romance Languages

- University of Wisconsin
  - Departments
    - Chemistry
    - English
    - German
    - Spanish

- Vanderbilt University
  - Departments
    - Chemistry
    - English

- Washington University
  - History Department

- Yale University

APPENDIX D

Characteristics of Training Programs and Number of Departments or Schools Reporting Each Characteristic

I. Administrative Characteristics of the Program

A. Quantitative Aspects

1. Number of graduate students

a. less than 25	1
b. 25 - 74	7
c. 75 - 124	7
d. 125 or more	13
	28

2. Number of teaching assistants

a. less than 25	44
b. 25 - 74	61
c. 75 - 124	23
d. 125 or more	4
	132

3. Estimate of number of Ph.D.'s granted 1960 - 1965

a. less than 25	61
b. 25 - 49	25
c. 50 - 74	8
d. 75 - 100	3
e. 100 or more	14
	111

4. Estimated proportion of Ph.D.'s entering college teaching

a. less than 20%	7
b. 20 - 39%	12
c. 40 - 59%	6
d. 60 - 79%	20
e. 80 - 100%	79
	124

5. Direction of change (if any) in proportion of Ph.D.'s entering college teaching: 1960 - 1965

a. same	97
b. up	10
c. down	2
	109

6. Number of years present program has been in operation

a. less than 2 years	3
b. 2 - 4 years	25
c. 5 - 9 years	31
d. 10 years or more	51
	110

7. Number of levels of teaching assistant stipends

a. one	14
b. 2 level	8
c. 3 or more	4
d. varies on individual basis	11
	37

B. Locus of Control of Training Activities

1. Department	125
2. University committee	6
3. Graduate dean's office	2
	133

C. Supervision of Program

1. Department chairman	21
2. Supervisor of teaching assistants	22
3. Course instructor	12
4. Experienced teaching assistant	9
5. Extra-departmental supervision	1
	65

D. Released Time for Faculty Member for Supervisory Activities

yes	28
no	118
	146

E. Significant Factors in Establishing Program

1. Historical development	14
2. Chairman	5
3. Teaching assistant supervisor	6
4. Need for additional teachers	11
	36

F. Factors Which Facilitate Program Growth and Development

1. Dedication of some individuals	14
2. General faculty interest	6
3. Results	1
4. Economical benefit	3
5. Reduced teacher load	4
6. Administrative interest	7
	35

G. Factors Which Inhibit Program Growth and Development

1. Administrative resistance	1
2. Research assistantships, other fellowships	5
3. Lack of faculty interest	21
4. Lack of released time	7
5. Lack of student time	3
6. Staff shortage	10
7. Teaching assistant shortage	2
	49

II. Population Receiving Training

A. Individuals Other Than Ph.D. Candidates for Whom Training is Available and/or Required

1. M.A. candidates	60
2. All graduate students	32
	92
3. New faculty if teaching beginning courses	16

B. Criteria for Selection of Teaching Assistants

1. Academic record	25
2. Personal character	7
3. Previous teaching experience	12
4. No selection	6
5. Maturity	2
6. Recommendations	20
7. Review of application	5
	77

III. Formal Characteristics of Program

A. Characteristics of Classroom Teaching

1. Teaching required as part of graduate training

yes	31
no	115
	146

2. Average duration of teaching experience

a. 1 year	9
b. 2 years	22
c. 3 years or more	25
	56

3. Average number of student contact hours per week

a. 3 or less	7
b. 4 - 6 hours	21
c. 7 - 9 hours	10
d. 10 hours or more	9
	47

4. Form of faculty supervision of teaching

a. 1 or more class visits	43
b. informal talks	9
c. regular meetings	31
d. unstructured	40
	123

5. Academic credit given for teaching	9

B. Teaching Assistant Autonomy and Responsibility

1. Individual who constructs tests in course

a. supervisor	12
b. teaching assistant	16
c. joint effort	28
	56

2. Individual who chooses course content

a. supervisor	30
b. teaching assistant	19
c. joint effort	15
	64

3. Individual who assigns final grade

a. supervisor	11
b. teaching assistant	26
c. joint decision	21
	58

4. Characteristics of syllabus or outline

a. detailed	27
b. general	29
c. week by week	4
	60

C. Amount of Pre-service Training for Teaching Assistant

1. Brief administrative session only	88
2. 1 - 3 hours	27
3. 1 - 5 days	12
4. 1 - 2 weeks	15
5. entire summer preparation	4
	146

D. Formal Seminar or Course

1. Number of meetings per semester

a. 10 or less	4
b. 11 - 20	6
c. 21 - 30	8
d. more than 30	17
	35

2. Academic credit given

a. amount unspecified	4
b. 1 hour	6
c. 2 hours	8
d. 3 hours or more	17
	35

3. Temporal relation to teaching activities

a. concurrent	10
b. preceding	3
c. either concurrent or preceding	22
	35

E. Informal Group Meetings

1. Number of meetings per semester

a. 5 or less	17
b. 6 - 10	15
c. 11 - 15	5
d. more than 15	52
	89

2. Number of semesters during which group meetings are held

a. 1 semester or less	81
b. 2 semesters	8
c. more than two semesters	6
	95

F. Planned Observation by Teaching Assistant of Skilled Teacher

1. Before teaching	5
2. Concurrent with teaching	44
3. Occasional	11
	60

G. Service as Assistant to Regular Faculty Instructor

1. Less than 1 semester	56
2. 1 semester	12
3. 1 academic year	7
4. More than 1 year	6
	81

H. Sequence of Elements of Training Program

1. Sequence reported but unspecified	7
2. Observation, assisting in course before teaching	24
3. Observation, assisting concurrent with teaching	15
4. Teaching basic, then intermediate course	7
5. Given detailed then general outline	1
6. Depends on individual teaching assistant's progress	9
	63

IV. Substantive Features of Training Program

A. Organized Presentation of Philosophy, History, and Problems of Higher Learning	13
B. Presentation of Objectives and Philosophy of Course	29

C. Introduction to the Roles and Responsibilities of College Faculty	
1. Attendance at department and faculty meetings, conventions	6
2. Counseling of undergraduates	6
3. Guest Lectures	4
4. Participation on Faculty Committee and/or in review of curriculum	11
D. Presentation of Psychology of Learning, Thinking and Motivation	26
E. Practice in Defining Instructional Objectives, Developing Syllabi, Reading Lists, etc.	70
F. Presentation of Specific, Concrete Instructional Procedures	93
G. Training in Evaluating Student Achievement	
1. General introduction	34
2. Criteria for choice of evaluation forms	9
3. Developing items	1
4. Analyzing results	2
5. Use for instruction	3
6. Theory and practice of grading	9
	58
H. "Refresher" Training in Subject Matter of Undergraduate Course	30
V. Evaluation of Program and of Teaching Assistant Performance	
A. Mechanisms and Procedures for Evaluating the Program	
1. Opinion of teaching assistants	29
2. Opinion of faculty	27
3. Student evaluation of course	20
4. Post Ph.D. follow-up	5
5. No systematic evaluation	24
6. Student performance	17
7. Teaching assistant performance	29
	151

B. Mechanisms and Procedures for Evaluating Teaching Assistant Performance

1. Opinion of superior	87
2. Student evaluation	31
3. Graduate course work and/or research	14
4. Personality of teaching assistant	1
5. Class visits	51
6. Assignments	6
7. Student performance	11
8. No systematic evaluation	9
	210

VI. Opinions Regarding Strong and Weak Points of Current Programs

A. Strong Points

1. Meets instructional needs	10
2. Contribution to teaching assistant's effectiveness	27
3. High quality of teaching assignments	7
4. Coordination of course	25
5. Master teaching assistants	4
6. Skill of supervision	15
7. Personal contacts between teaching assistants and supervisor	25
8. Teaching assistant - student relationship	2
9. Good syllabi	3
10. Teaching assistant freedom and autonomy	7
11. Contribution to students learning	9
12. Regular graduate meeting and/or discussion session	18
	152

B. Areas in Need of Improvement

1. More supervision or more supervisors	14
2. More teaching assistant interest in teaching	19
3. Higher stipends for teaching assistants	12
4. Reduced teaching assistant loads	9
5. Released time for supervision	13
6. Pre-service training	10
7. General upgrading	4

8. Higher quality and/or more teaching assistants	14
9. Increased status of teaching assistant	11
10. Better course outlines, syllabi	4
11. More faculty interest	11
12. Increased attraction relative to Research Assistantships and fellowships	9
13. Perfecting details of present programs	6
14. More personal contacts between staff and teaching assistant	1
15. More formal instruction	35
16. Teaching assistant and program evaluation	1
	173